UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,656	03/20/2001	Robert W. Heath	P123US1	2873

8791 7590 08/26/2004

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER	
ODOM, CURTIS B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/813,656	HEATH ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-73* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it contains more than 150 words (see above). Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 35 and 56 are objected to because of the following informalities:

a. In claim 35, the phrase “claim 32” is suggested to be changed to “claim 33”.

b. In claim 56, “led” is suggested to be changed to “LED”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 55 and 56 recite the limitation "the channel quality paramter" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-50, and 57-73 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al. (U. S. Patent No. 6, 097, 704).

Regarding claim 1, Jackson et al. discloses a method for displaying a quality of a wireless data transmission comprising:

receiving (Fig. 1, block 22, column 12, lines 15-51) the wireless data transmission wherein the wireless data transmission originates from multiple transmit antennae;

determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claim 2, which inherits the limitations of claim 1, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises determining a value of the quality parameter for each of the multiple streams of data (column 15, lines 34-49).

Regarding claim 3, which inherits the limitations of claim 1, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises determining an aggregate value of the quality parameter for the multiple streams of data (column 15, lines 34-49), wherein an aggregate value is simply a summation of the signal measurements of the RF signals.

Regarding claim 4, which inherits the limitations of claim 2, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate, a packet error rate and a frame error rate (column 15, lines 34-49).

Regarding claim 5, which inherits the limitations of claim 3, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate, a packet error rate and a frame error rate (column 15, lines 34-49).

Regarding claim 6, which inherits the limitations of claim 2, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 7, which inherits the limitations of claim 3, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 8, which inherits the limitations of claim 2, Jackson et al. discloses the quality parameter comprises the number of cyclic redundancy check failures (column 15, lines 34-49), wherein the number of cyclic redundancy check failures is a predetermined characteristic of the RF signal.

Regarding claim 9, which inherits the limitations of claim 3, Jackson et al. discloses the quality parameter comprises the number of cyclic redundancy check failures (column 15, lines 34-49), wherein the number of cyclic redundancy check failures is a predetermined characteristic of the RF signal.

Regarding claim 10, which inherits the limitations of claim 1, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises: determining a propagation channel for the wireless data transmission (column 7, lines 33-65); and determining a value for the quality parameter based on the propagation channel (column 15, lines 34-49).

Regarding claim 11, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate of each of the multiple streams of data, a packet error rate of each of the multiple streams of data, and a frame error rate of each of the multiple streams of data(column 15, lines 34-49).

Regarding claim 12, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate of the multiple streams of data, a packet error rate of the multiple streams of data and a frame error rate of the multiple streams of data (column 15, lines 34-49).

Regarding claim 13, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio of each of the multiple streams of data, a carrier-to-interference ratio each of the multiple streams of data and a signal-to-interference plus noise ratio each of the multiple streams of data (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 14, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio of the multiple

streams of data, a carrier-to-interference ratio of the multiple streams of data and a signal-to-interference plus noise ratio of the multiple streams of data (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 15, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a channel condition number, a delay spread, a time variance, and a frequency variance (column 15, lines 34-49), wherein channel condition number, a delay spread, a time variance, and a frequency variance are predetermined characteristics of the RF signal.

Regarding claim 16, Jackson et al. discloses a method for displaying a quality of a wireless data transmission comprising:

receiving (Fig. 1, blocks 18 and 22, column 12, lines 15-51) the wireless data transmission wherein the wireless data transmission originates from and communication system comprising multiple transmit antennae and multiple receive antennae;

determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claims 17-30, the claimed method includes features corresponding to the subject matter mentioned in the above rejection of claims 2-15 which is applicable hereto.

Regarding claim 31, Jackson et al. discloses a method for displaying a quality of a wireless data transmission comprising:

receiving (Fig. 1, blocks 18 and 22, column 12, lines 15-51) the wireless data transmission wherein the wireless data transmission originates from a spatial multiplexing system (wherein a spatial multiplexing system is simply a transmitter and receiver which use a diversity of antennas for communication as disclosed by Jackson et al.);

determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claims 32-45, the claimed method includes features corresponding to the subject matter mentioned in the above rejection of claims 2-15 which is applicable hereto.

Regarding claim 46, Jackson et al. discloses an apparatus for displaying a quality of a wireless data transmission comprising:

means for receiving (Fig. 1, block 22, column 12, lines 15-51) the wireless data transmission wherein the wireless data transmission originates from multiple transmit antennae;

means for determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

means for displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claim 47, which inherits the limitations of claim 46, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission

comprises means determining a value of the quality parameter for each of the multiple streams of data (column 15, lines 34-49).

Regarding claim 48, which inherits the limitations of claim 46, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises means for determining an aggregate value of the quality parameter for the multiple streams of data (column 15, lines 34-49), wherein an aggregate value is simply a summation of the signal measurements of the RF signals.

Regarding claim 49, which inherits the limitations of claim 47, Jackson et al. discloses means for displaying the quality of the wireless transmission comprises means for displaying the value (column 15, liens 34-49).

Regarding claim 50, which inherits the limitations of claim 48, Jackson et al. discloses means for displaying the quality of the wireless transmission comprises means for displaying the aggregate value (column 15, liens 34-49).

Regarding claim 57, Jackson et al. discloses a wireless communication system comprising:

a base transceiver station (Fig. 1, block 15, column 12, lines 15-51) wherein the base transceiver station includes a multiple transmit antennae array;

means for receiving (Fig. 1, block 22, column 12, lines 15-51) the wireless data transmission from the multiple transmit antennae array;

means for determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

means for displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claim 58, which inherits the limitations of claim 57, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises means determining a value of the quality parameter for each of the multiple streams of data (column 15, lines 34-49).

Regarding claim 59, which inherits the limitations of claim 57, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises means for determining an aggregate value of the quality parameter for the multiple streams of data (column 15, lines 34-49), wherein an aggregate value is simply a summation of the signal measurements of the RF signals.

Regarding claim 60, which inherits the limitations of claim 58, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate, a packet error rate and a frame error rate (column 15, lines 34-49).

Regarding claim 61, which inherits the limitations of claim 59, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate, a packet error rate and a frame error rate (column 15, lines 34-49).

Regarding claim 62, which inherits the limitations of claim 58, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio (column 15, lines 34-49), wherein

signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 63, which inherits the limitations of claim 59, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 64, which inherits the limitations of claim 58, Jackson et al. discloses the quality parameter comprises the number of cyclic redundancy check failures (column 15, lines 34-49), wherein the number of cyclic redundancy check failures is a predetermined characteristic of the RF signal.

Regarding claim 65, which inherits the limitations of claim 59, Jackson et al. discloses the quality parameter comprises the number of cyclic redundancy check failures (column 15, lines 34-49), wherein the number of cyclic redundancy check failures is a predetermined characteristic of the RF signal.

Regarding claim 66, which inherits the limitations of claim 57, Jackson et al. discloses the wireless data transmission comprises multiple streams of data and determining the quality of the wireless data transmission based on a quality parameter of the wireless data transmission comprises: means for determining a propagation channel for the wireless data transmission (column 7, lines 33-65); and means for determining a value for the quality parameter based on the propagation channel (column 15, lines 34-49).

Regarding claim 67, which inherits the limitations of claim 66, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate of each of the multiple streams of data, a packet error rate of each of the multiple streams of data, and a frame error rate of each of the multiple streams of data(column 15, lines 34-49).

Regarding claim 68, which inherits the limitations of claim 66, Jackson et al. discloses the quality parameter is selected from a group consisting of a bit error rate of the multiple streams of data, a packet error rate of the multiple streams of data and a frame error rate of the multiple streams of data (column 15, lines 34-49).

Regarding claim 69, which inherits the limitations of claim 66, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio of each of the multiple streams of data, a carrier-to-interference ratio each of the multiple streams of data and a signal-to-interference plus noise ratio each of the multiple streams of data (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 70, which inherits the limitations of claim 66, Jackson et al. discloses the quality parameter is selected from a group consisting of a signal-to-noise ratio of the multiple streams of data, a carrier-to-interference ratio of the multiple streams of data and a signal-to-interference plus noise ratio of the multiple streams of data (column 15, lines 34-49), wherein signal-to-noise ratio, a carrier-to-interference ratio and a signal-to-interference plus noise ratio are predetermined characteristics of the RF signal.

Regarding claim 71, which inherits the limitations of claim 10, Jackson et al. discloses the quality parameter is selected from a group consisting of a channel condition number, a delay

spread, a time variance, and a frequency variance (column 15, lines 34-49), wherein channel condition number, a delay spread, a time variance, and a frequency variance are predetermined characteristics of the RF signal.

Regarding claim 72, Jackson et al. discloses a wireless communication system comprising:

a base transceiver station (Fig. 1, block 15, column 12, lines 15-51) wherein the base transceiver station includes a multiple transmit antennae array;

a multiple receive antennae array for receiving (Fig. 1, block 22, column 12, lines 15-51) the wireless data transmission from the multiple transmit antennae array;

means for determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

means for displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Regarding claim 73, Jackson et al. discloses a wireless communication system comprising:

a base transceiver station (Fig. 1, block 15, column 12, lines 15-51) wherein the base transceiver implements a spatial multiplexing technology (wherein the transmitter and receiver which use a diversity of antennas for communication as disclosed by Jackson et al. is a spatial multiplexing technology);

means for receiving (Fig. 1, block 22, column 12, lines 15-51) the wireless data transmission from the base station;

means for determining (Fig. 1, blocks 18 and 22, column 15, lines 34-49) the quality of the wireless data transmission based on a quality parameter of the wireless data transmission; and

means for displaying (Fig. 1, block 22, column 15, lines 34-49) the quality of the wireless data transmission.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 51-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al. (U. S. Patent No. 6, 097, 704).

Regarding claims 51-56, Jackson et al. does not disclose using an analog meter or LED indicators to display the value of the quality parameter for a stream of data or multiple streams of data. However, it would have been obvious to one of ordinary skill in the art that it is well known in the art to display values using an analog meter or a plurality of analog meters or LED indicators or sets of LED indicators. The type of display used would depend on the value being measured. Thus, claims 51-56 are deemed a design choice and do not constitute patentability.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fordham et al. (U. S. Patent No. 5, 136, 528) discloses displaying values using an analog meter or a plurality of analog meters

Tajima et al. (U. S. Patent No. 6, 441, 721) discloses displaying values using LED indicators or sets of LED indicators.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Brigida et al. (U. S. Patent No. 5, 535, 242) and Mintz (U. S. Patent No. 6, 266, 527) disclose receiving information from a plurality of transmit antennae and displaying a quality parameter from the transmissions.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
August 11, 2004

STEPHEN CHIN
SUPERVISORY PATENT EXAMINE
TECHNOLOGY CENTER 2600